

Rational Expressions and Equations

Simplify

1.

$$\frac{\frac{2}{x+5}}{\frac{3}{x-5} + \frac{1}{x^2-25}}$$

2.

$$\frac{\frac{5}{y-4}}{\frac{3}{y+4} + \frac{2}{y^2-16}}$$

3.

$$\frac{\frac{4}{a^2-2a-15}}{\frac{1}{a-5} + \frac{2}{a+3}}$$

4.

$$\frac{\frac{5}{b^2-6b-27}}{\frac{3}{b-9} + \frac{1}{b+3}}$$

Solve each equation. Make sure to check for extraneous solutions.

5.
$$\frac{1}{x-3} = \frac{8}{x^2-9}$$

6.
$$x - \frac{12}{x} = 1$$

7.
$$\frac{x}{x-4} + \frac{6}{x-3} = \frac{16}{(x-4)(x-3)}$$

8.
$$\frac{5}{x^2-7x+12} = \frac{2}{x-3} + \frac{5}{x-4}$$

9.
$$\frac{x}{5x+5} = \frac{1}{x+2} + \frac{1}{x^2+3x+2}$$

10.
$$\frac{2}{4t^2-9} + \frac{1}{2t-3} = \frac{3}{2t+3}$$